396.40503CX1

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

APPLICANTS:	**M. NAKATA, et al.**
APPLICATION NO.:	**10/600,709**
FILED:	**June 23, 2003**
FOR:	**BREEDING METHOD OF FEMALE PIG FOR PROPAGATION AND FEED FOR FEMALE PIG FOR PROPAGATION**
ART UNIT:	**TBD**
EXAMINER:	**TBD**

PRELIMINARY REMARKS

Mail Stop Patent Application
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

August 12, 2003

Dear Sir:

The following preliminary remarks are being submitted in light of rejections to claims 10-16 and 20 in prior Application No. 09/913,739, in the Office Action mailed March 21, 2003 in No. 09/913,739.

Note that original claims 1-7 of the above-identified application correspond respectively to claims 10, 20, 11 and 13-16 of No. 09/913,739, with present claim 1 (as compared with claim 10 of No. 09/913,739) reciting at least one selected from a calcium salt and a magnesium salt of the fatty acid (rather than reciting a metal salt of the fatty acid), and in reciting "said" fatty acid rather than referring to the fatty acid "as described above".

Initially, noting that claim 1 of the present application recites "said" fatty acid, it is respectfully submitted that any allegation that the prior claim 10 was unclear in reciting the fatty acid "as described above" is now moot. In reciting "a" fatty acid

having specified carbon atoms and double bonds, and a specified melting point, there is clear antecedent basis for "said" fatty acid as recited later in claim 1.

It is respectfully submitted that the present claims patentably distinguish over the teachings of U.S. Patent No. 4,496,547 to Kawashima, et al., applied by the Examiner in rejecting claims 10-16 and 20 under 35 USC 103 in the Office Action mailed March 21, 2003, in Application No. 09/913,739.

It is respectfully submitted that Kawashima, et al. would have neither taught nor would have suggested such a feed adapted to be fed to a female pig for propagation as in the present claims, including the at least one lipid as recited in claim 1, this at least one lipid being selected from, inter alia, at least one selected from a group consisting of calcium salt and a magnesium salt of the specified fatty acid, in a proportion of 0.5-10% by weight in terms of the fatty acid.

It is respectfully submitted that Kawashima, et al. would have neither disclosed nor would have suggested the other aspects of the present invention as in the remaining, dependent claims, including (but not limited to) wherein the feed further includes a base feed, blended with the at least one lipid (see claim 2); and/or wherein the fatty acid is at least one selected from the group set forth in claim 3; and/or wherein the at least one selected from a calcium salt and a magnesium salt of the fatty acid is produced by a technique as set forth in claims 4 and 5; and/or wherein the feed is produced by blending a base feed with a specified calcium salt and/or magnesium salt of the fatty acid as in claims 6 and 7.

The invention as claimed in the above-identified application is directed to a feed adapted to be fed to a female pig for propagation, and to a feed for use in this method, particularly useful for propagation by artificial insemination, which feed can increase a litter size, elevate the number of delactation, shorten the days of returning estrus and allow an annual average delivery frequency to grow.

So-called lipids such as triglycerides and fatty acids are excellent particularly as an energy source among three essential nutrients, and have been widely used for feeds for livestock. These triglycerides and fatty acids, in general, have been used blended with general mixed feeds, for the purpose of efficiently supplying energy, and have not been used for the purpose of improving a breeding efficiency paying attention to physiological activity of the specific fatty acid.

Fatty acid calcium salts are lipids which relatively recently (in the 1980s) have been used as a high energy feed for livestock such as high-yielding dairy cows and others, particularly in supplying energy in hot weather.

As can be seen from the foregoing, while triglycerides, fatty acids and fatty acid calcium salts have been used as raw materials, they have been used in almost all cases for the purposes of (1) growing a body and improving production of milk by efficiently supplying energy, or (2) introducing some kind of fatty acids into livestocks such a beef, milk, pork, chickens and eggs.

In recent years, attention has been paid to a physiological activity of unsaturated fatty acids such as, for example, linoleic and linolenic acids, and proposals have been made to use these unsaturated fatty acids in the breeding of cattle. It has been reported that these unsaturated fatty acids reduce a death rate of fertilized ovums, which results in elevating a fecundation rate of cattle.

Notwithstanding the foregoing, it has been desired to improve the breeding of pigs, for example, increasing litter size, elevating the number of delactation, shortening the number of days until returning estrus and increasing annual average delivery frequencies. Applicants have addressed these objects, and have achieved desired results through use of feed components and physiologically active substances contained in feeds. Specifically, Applicants have found that by feeding a female pig for propagation with a feed including at least one lipid selected from (1) a

specified group of fatty acids having various characteristics including a melting point falling in a range of -60-40° C and an iodine value falling in the range of 30-470, and which has 2-6 double bonds in a molecule, (2) a triglyceride containing this fatty acid and (3) a calcium and/or magnesium salts of this fatty acid, in a proportion of 0.5 to 10% by weight in terms of the fatty acid; particularly, a feed containing a lipid including the calcium and/or magnesium salt of the fatty acid and, if necessary, a triglyceride containing this fatty acid, the foregoing objects are achieved, and a feed is achieved improving the breeding characteristics of a pig, particularly a pig propagated by artificial insemination.

Kawashima, et al. discloses an agent for bloat-prevention or treatment, the agent including a mixture having at least a saccharide fatty acid ester and a fatty acid salt. See column 2, lines 5-13. Note also column 2, lines 18-29 and 42-44, this latter portion describing that fatty acids with about 6-24 carbons are usually suitable as the fatty acid part of the saccharide fatty acid ester. Note also column 4, lines 48-63, describing that the amount of the agent for bloat-prevention or treatment, when added to drinking water or a feed, is approximately 0.005-10% by weight. This patent discloses that the fatty acid salt can be salts of various fatty acids, including alkali metal salts, alkaline earth metal salts, various metal salts, ammonium salts, organoamine salts and basic amino acid salts. See column 3, lines 8-22. The suitable use amount ratio by weight of saccharide fatty acid ester to fatty acid salt is approximately 97:3 to 3:97. See column 4, lines 6-10. Note also column 5, lines 16-32.

It is respectfully submitted that Kawashima, et al. generally discloses fatty acids and metal for constituting the metal salt, and except, for example, for stearic acid potassium salt and others as described in Examples 1-14 of Table 1 beginning in column 7 of this patent, does not disclose specific examples of metal salts of fatty

acids. Moreover, the fatty acid salts as used in the examples of Kawashima, et al. do not include fatty acids having 2-6 double bonds (note, in comparison, that the fatty acid component of the metal salt of the fatty acid according to the present claims has 2-6 double bonds in the molecule). Thus, it is respectfully submitted that the fatty acids salts in the specific examples of Kawashima, et al. are not included within the feed according to the present invention.

Moreover, it is respectfully submitted that, as seen in the specification of the above-identified application (note Tables 5, 7 and 16 respectively on pages 20, 23 and 41 of Applicants' specification, particularly Samples 40, 47 and 54 therein), calcium fatty acid salts which do not include fatty acids within the scope of the present claims do not provide the advantageous effects achieved according to the present invention. It is respectfully submitted that the evidence in Applicants' specification must be considered in determining patentability. See In re DeBlauwe, 222 USPQ 191 (CAFC 1984). Properly considering the evidence in Applicants' specification, it is respectfully submitted that this evidence shows unexpectedly better results as compared to feeds including materials with fatty acids outside the scope of those recited in the present claims, and establishes unobviousness of the presently claimed invention even if Kawashima, et al. establishes a prima facie case of obviousness.

Moreover, it is again emphasized that in the examples of Kawashima, et al., potassium salts of stearic acid, as well as sodium salts of various acids, are used. The stearic acid potassium salts are included in alkali metal salts, and metal salts excluding the alkali metal salts are metallic soaps. Calcium and magnesium salts of fatty acids are included in such metallic soaps, and differ from alkali metal salts in that they are soluble water, in physicochemical properties, etc. For example, alkali metal salts have a higher polarity, and are soluble in water. In contrast, metallic

soaps have a lower polarity, and are poor in water solubility. Moreover, metallic soaps are water-repellant and have extremely low water absorption. Accordingly, metallic soaps are stable for preservation thereof, and can be easily added to a base feed. As can be seen by this reasoning, calcium and magnesium salts are superior to alkali metal salts such as stearic acid potassium salts as in Kawashima, et al.

Moreover, it is noted that the fatty acid salts specifically described in the examples of Kawashima, et al., are stearic acid potassium salt (Example 1-6), coconut fatty acid sodium salt (Example 7), palmitic acid L-lysin salt (Example 8), oleic acid sodium salt (Example 9) and beef tallow fatty acid sodium salt (Example 10). However, stearic acid and palmitic acid have no double bond, and oleic acid has only one double bond. Also, it is respectfully submitted that fatty acids having 2-6 double bonds are contained in Examples of Kawashima, et al. in a proportion of 1.2% in coconut fatty acid and of trace-4.4% in beef tallow fatty acid.

Moreover, it is respectfully submitted that the animal feed includes 0.02-3% by weight of the mixture of saccharide fatty acid and fatty acid salt in, e.g., claim 13 of Kawashima, et al. It is respectfully submitted that the animal feed of Kawashima, et al. would have neither disclosed nor would have suggested a feed containing, for example, fatty acid salt of the fatty acid have 2-6 double bonds, the feed including, for example, a fatty acid salt in a proportion of 0.5-10% by weight.

Especially in view of the foregoing, examination and allowance of all claims presently in the application, in due course, are respectfully requested.

To the extent necessary, Applicants petition for an extension of time under 37 CFR 1.136. Please charge any shortage in fees due in connection with the filing of this paper, including extension of time fees, to the Deposit Account No. 01-2135

(Case No. 396.40503CX1), and please credit any excess fees to such Deposit Account.

Respectfully submitted,

ANTONELLI, TERRY, STOUT & KRAUS, LLP

By _____
William I. Solomon
Reg. No. 28,565

WIS/led/sjg
1300 North Seventeenth Street
Suite 1800
Arlington, VA 22209
Tel.: (703) 312-6600
Fax: (703) 312-6666